

COMPUTER CONTROLLED HYDRAULIC RESISTANCE DEVICE FOR  
A PROSTHESIS AND OTHER APPARATUS

Abstract of the Disclosure

5 A computer controlled hydraulic resistance device for apparatus  
such as a prosthetic knee for above knee amputees, includes a two stage  
pilot operated solenoid valve connected to control the flow of hydraulic  
fluid to and from a hydraulic actuator which applies resistance to the  
10 prosthetic knee or other apparatus through a coupling. Hydraulic  
pressure is sensed on the high and low side of the actuator by a spring  
biased magnet and a magnetically actuated electronic sensor and is used  
by a micro-controller in a closed-loop manner to compensate  
automatically for variations in the device and in the hydraulic fluid  
viscosity. The device also has magnetically actuated electronic sensors  
which sense positions of the apparatus and feed back to the micro-  
controller for applying a predetermined resistance profile to the  
apparatus.

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